SEQUENCE LISTING

<110> Fletcher, Jonathan A.
      Kroll, Todd G.

<120> PAX8-PPARgamma NUCLEIC ACID MOLECULES
   AND POLYPEPTIDES AND USES THEREOF

<130> B0801/7196 (ERP/MAT)

<150> US 60/177,109
<151> 2000-01-20

<150> US 60/225,079
<151> 2000-08-14

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1               5                   10                  15

gga ggg gcc ttt gtg aat ggc aga cct ctg ccg gaa gtg gtc cgc cag      96
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
                20                  25                  30

cgc atc gta gac ctg gcc cac cag ggt gta agg ccc tgc gac atc tct     144
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
            35                  40                  45

cgc cag ctc cgc gtc agc cat ggc tgc gtc agc aag atc ctt ggc agg     192
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
        50                  55                  60

tac tac gag act ggc agc atc cgg cct gga gtg ata ggg ggc tcc aag     240
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80

ccc aag gtg gcc acc ccc aag gtg gtg gag aag att ggg gac tac aaa     288
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95
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cgc cag aac cct acc atg ttt gcc tgg gag atc cga gac cgg ctc ctg        336
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
            100                 105                 110

gct gag ggc gtc tgt gac aat gac act gtg ccc agt gtc agc tcc att        384
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
            115                 120                 125

aat aga atc atc cgg acc aaa gtg cag caa cca ttc aac ctc cct atg        432
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
    130                 135                 140

gac agc tgc gtg gcc acc aag tcc ctg agt ccc gga cac acg ctg atc        480
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160

ccc agc tca gct gta act ccc ccg gag tca ccc cag tcg gat tcc ctg        528
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165                 170                 175

ggc tcc acc tac tcc atc aat ggg ctc ctg ggc atc gct cag cct ggc        576
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
                180                 185                 190

agc gac aag agg aaa atg gat gac agt gat cag gat agc tgc cga cta        624
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
            195                 200                 205

agc att gac tca cag agc agc agc agc gga ccc cga aag cac ctt cgc        672
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
    210                 215                 220

acg gat gcc ttc agc cag cac cac ctc gag ccg ctc gag tgc cca ttt        720
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225                 230                 235                 240

gag cgg cag cac tac cca gag gcc tat gcc tcc ccc agc cac acc aaa        768
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245                 250                 255

ggc gag cag ggc ctc tac ccg ctg ccc ttg ctc aac agc acc ctg gac        816
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
                260                 265                 270

gac ggg aag gcc acc ctg acc cct tcc aac acg cca ctg ggg cgc aac        864
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
            275                 280                 285

ctc tcg act cac cag acc tac ccc gtg gtg gca gaa atg acc atg gtt        912
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Glu Met Thr Met Val
            290                 295                 300

gac aca gag atg cca ttc tgg ccc acc aac ttt ggg atc agc tcc gtg        960
Asp Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val
305                 310                 315                 320
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gat ctc tcc gta atg gaa gac cac tcc cac tcc ttt gat atc aag ccc      1008
Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro
                325             330             335

ttc act act gtt gac ttc tcc agc att tct act cca cat tac gaa gac      1056
Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp
                340             345             350

att cca ttc aca aga aca gat cca gtg gtt gca gat tac aag tat gac      1104
Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp
                355             360             365

ctg aaa ctt caa gag tac caa agt gca atc aaa gtg gag cct gca tct      1152
Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser
    370             375             380

cca cct tat tat tct gag aag act cag ctc tac aat aag cct cat gaa      1200
Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu
385             390             395             400

gag cct tcc aac tcc ctc atg gca att gaa tgt cgt gtc tgt gga gat      1248
Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp
                405             410             415

aaa gct tct gga ttt cac tat gga gtt cat gct tgt gaa gga tgc aag      1296
Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys
                420             425             430

ggt ttc ttc cgg aga aca atc aga ttg aag ctt atc tat gac aga tgt      1344
Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys
            435             440             445

gat ctt aac tgt cgg atc cac aaa aaa agt aga aat aaa tgt cag tac      1392
Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr
    450             455             460

tgt cgg ttt cag aaa tgc ctt gca gtg ggg atg tct cat aat gcc atc      1440
Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile
465             470             475             480

agg ttt ggg cgg atg cca cag gcc gag aag gag aag ctg ttg gcg gag      1488
Arg Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu
                485             490             495

atc tcc agt gat atc gac cag ctg aat cca gag tcc gct gac ctc cgg      1536
Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg
                500             505             510

gcc ctg gca aaa cat ttg tat gac tca tac ata aag tcc ttc ccg ctg      1584
Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu
            515             520             525

acc aaa gca aag gcg agg gcg atc ttg aca gga aag aca aca gac aaa      1632
Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys
    530             535             540
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tca cca ttc gtt atc tat gac atg aat tcc tta atg atg gga gaa gat    1680
Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp
545             550             555             560

aaa atc aag ttc aaa cac atc acc ccc ctg cag gag cag agc aaa gag    1728
Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu
                565             570             575

gtg gcc atc cgc atc ttt cag ggc tgc cag ttt cgc tcc gtg gag gct    1776
Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala
                580             585             590

gtg cag gag atc aca gag tat gcc aaa agc att cct ggt ttt gta aat    1824
Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn
                595             600             605

ctt gac ttg aac gac caa gta act ctc ctc aaa tat gga gtc cac gag    1872
Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu
        610             615             620

atc att tac aca atg ctg gcc tcc ttg atg aat aaa gat ggg gtt ctc    1920
Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu
625             630             635             640

ata tcc gag ggc caa ggc ttc atg aca agg gag ttt cta aag agc ctg    1968
Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu
                645             650             655

cga aag cct ttt ggt gac ttt atg gag ccc aag ttt gag ttt gct gtg    2016
Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val
                660             665             670

aag ttc aat gca ctg gaa tta gat gac agc gac ttg gca ata ttt att    2064
Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile
                675             680             685

gct gtc att att ctc agt gga gac cgc cca ggt ttg ctg aat gtg aag    2112
Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys
        690             695             700

ccc att gaa gac att caa gac aac ctg cta caa gcc ctg gag ctc cag    2160
Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln
705             710             715             720

ctg aag ctg aac cac cct gag tcc tca cag ctg ttt gcc aag ctg ctc    2208
Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu
                725             730             735

cag aaa atg aca gac ctc aga cag att gtc acg gaa cac gtg cag cta    2256
Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu
                740             745             750

ctg cag gtg atc aag aag acg gag aca gac atg agt ctt cac ccg ctc    2304
Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu
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ctg cag gag atc tac aag gac ttg tac tag   2334
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Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
                20   25   30
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
        35   40   45
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
    50   55   60
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65   70   75   80
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85   90   95
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
                100   105   110
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
        115   120   125
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
    130   135   140
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145   150   155   160
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165   170   175
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
                180   185   190
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
            195   200   205
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
    210   215   220
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225   230   235   240
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245   250   255
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
                260   265   270
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
    275   280   285
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Glu Met Thr Met Val
    290   295   300
Asp Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val
305   310   315   320
Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro
                325   330   335
Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp
                340   345   350
Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp

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                   355                        360                         365
Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser
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Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu
385                     390                     395                     400
Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp
                405                     410                     415
Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys
                420                     425                     430
Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys
                435                     440                     445
Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr
    450                     455                     460
Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile
465                     470                     475                     480
Arg Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu
                485                     490                     495
Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg
                500                     505                     510
Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu
    515                     520                     525
Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys
    530                     535                     540
Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp
545                     550                     555                     560
Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu
                565                     570                     575
Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala
                580                     585                     590
Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn
    595                     600                     605
Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu
    610                     615                     620
Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu
625                     630                     635                     640
Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu
                645                     650                     655
Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val
                660                     665                     670
Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile
    675                     680                     685
Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys
    690                     695                     700
Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln
705                     710                     715                     720
Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu
                725                     730                     735
Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu
    740                     745                     750
Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu
    755                     760                     765
Leu Gln Glu Ile Tyr Lys Asp Leu Tyr
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1               5                   10                  15

gga ggg gcc ttt gtg aat ggc aga cct ctg ccg gaa gtg gtc cgc cag        96
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
            20                  25                  30

cgc atc gta gac ctg gcc cac cag ggt gta agg ccc tgc gac atc tct       144
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
        35                  40                  45

cgc cag ctc cgc gtc agc cat ggc tgc gtc agc aag atc ctt ggc agg       192
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
    50                  55                  60

tac tac gag act ggc agc atc cgg cct gga gtg ata ggg ggc tcc aag       240
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80

ccc aag gtg gcc acc ccc aag gtg gtg gag aag att ggg gac tac aaa       288
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95

cgc cag aac cct acc atg ttt gcc tgg gag atc cga gac cgg ctc ctg       336
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
            100                 105                 110

gct gag ggc gtc tgt gac aat gac act gtg ccc agt gtc agc tcc att       384
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
            115                 120                 125

aat aga atc atc cgg acc aaa gtg cag caa cca ttc aac ctc cct atg       432
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
    130                 135                 140

gac agc tgc gtg gcc acc aag tcc ctg agt ccc gga cac acg ctg atc       480
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160

ccc agc tca gct gta act ccc ccg gag tca ccc cag tcg gat tcc ctg       528
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165                 170                 175

ggc tcc acc tac tcc atc aat ggg ctc ctg ggc atc gct cag cct ggc       576
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
            180                 185                 190
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agc gac aag agg aaa atg gat gac agt gat cag gat agc tgc cga cta        624
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
        195             200             205

agc att gac tca cag agc agc agc agc gga ccc cga aag cac ctt cgc        672
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
        210             215             220

acg gat gcc ttc agc cag cac cac ctc gag ccg ctc gag tgc cca ttt        720
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225             230             235             240

gag cgg cag cac tac cca gag gcc tat gcc tcc ccc agc cac acc aaa        768
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
            245             250             255

ggc gag cag ggc ctc tac ccg ctg ccc ttg ctc aac agc acc ctg gac        816
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
            260             265             270

gac ggg aag gcc acc ctg acc cct tcc aac acg cca ctg ggg cgc aac        864
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
            275             280             285

ctc tcg act cac cag acc tac ccc gtg gtg gca gat cct cac tca ccc        912
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro
        290             295             300

ttg gcc ata aag cag gaa acc ccc gag gtg tcc agt tct agc tcc acc        960
Leu Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr
305             310             315             320

cct tgc tct tta tct agc tcc gcc ctt ttg gat ctg cag caa gtc ggc       1008
Pro Cys Ser Leu Ser Ser Ser Ala Leu Leu Asp Leu Gln Gln Val Gly
            325             330             335

tcc ggg gtc ccg ccc ttc aat gcc ttt ccc cat gct gcc tcc gtg tac       1056
Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr
            340             345             350

ggg cag ttc acg ggc cag gcc ctc ctc tca gaa atg acc atg gtt gac       1104
Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Glu Met Thr Met Val Asp
            355             360             365

aca gag atg cca ttc tgg ccc acc aac ttt ggg atc agc tcc gtg gat       1152
Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val Asp
        370             375             380

ctc tcc gta atg gaa gac cac tcc cac tcc ttt gat atc aag ccc ttc       1200
Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro Phe
385             390             395             400

act act gtt gac ttc tcc agc att tct act cca cat tac gaa gac att       1248
Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp Ile
            405             410             415
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-9-

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cca ttc aca aga aca gat cca gtg gtt gca gat tac aag tat gac ctg      1296
Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp Leu
            420             425              430

aaa ctt caa gag tac caa agt gca atc aaa gtg gag cct gca tct cca      1344
Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser Pro
        435             440             445

cct tat tat tct gag aag act cag ctc tac aat aag cct cat gaa gag      1392
Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu Glu
    450             455             460

cct tcc aac tcc ctc atg gca att gaa tgt cgt gtc tgt gga gat aaa      1440
Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp Lys
465             470             475             480

gct tct gga ttt cac tat gga gtt cat gct tgt gaa gga tgc aag ggt      1488
Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys Gly
            485             490             495

ttc ttc cgg aga aca atc aga ttg aag ctt atc tat gac aga tgt gat      1536
Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys Asp
            500             505             510

ctt aac tgt cgg atc cac aaa aaa agt aga aat aaa tgt cag tac tgt      1584
Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr Cys
        515             520             525

cgg ttt cag aaa tgc ctt gca gtg ggg atg tct cat aat gcc atc agg      1632
Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile Arg
    530             535             540

ttt ggg cgg atg cca cag gcc gag aag gag aag ctg ttg gcg gag atc      1680
Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu Ile
545             550             555             560

tcc agt gat atc gac cag ctg aat cca gag tcc gct gac ctc cgg gcc      1728
Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg Ala
            565             570             575

ctg gca aaa cat ttg tat gac tca tac ata aag tcc ttc ccg ctg acc      1776
Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu Thr
            580             585             590

aaa gca aag gcg agg gcg atc ttg aca gga aag aca aca gac aaa tca      1824
Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys Ser
        595             600             605

cca ttc gtt atc tat gac atg aat tcc tta atg atg gga gaa gat aaa      1872
Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp Lys
        610             615             620

atc aag ttc aaa cac atc acc ccc ctg cag gag cag agc aaa gag gtg      1920
Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu Val
625             630             635             640
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gcc atc cgc atc ttt cag ggc tgc cag ttt cgc tcc gtg gag gct gtg        1968
Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala Val
                645             650             655

cag gag atc aca gag tat gcc aaa agc att cct ggt ttt gta aat ctt        2016
Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn Leu
                660             665             670

gac ttg aac gac caa gta act ctc ctc aaa tat gga gtc cac gag atc        2064
Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu Ile
                675             680             685

att tac aca atg ctg gcc tcc ttg atg aat aaa gat ggg gtt ctc ata        2112
Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu Ile
            690             695             700

tcc gag ggc caa ggc ttc atg aca agg gag ttt cta aag agc ctg cga        2160
Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu Arg
705             710             715             720

aag cct ttt ggt gac ttt atg gag ccc aag ttt gag ttt gct gtg aag        2208
Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val Lys
                725             730             735

ttc aat gca ctg gaa tta gat gac agc gac ttg gca ata ttt att gct        2256
Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile Ala
                740             745             750

gtc att att ctc agt gga gac cgc cca ggt ttg ctg aat gtg aag ccc        2304
Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys Pro
            755             760             765

att gaa gac att caa gac aac ctg cta caa gcc ctg gag ctc cag ctg        2352
Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln Leu
            770             775             780

aag ctg aac cac cct gag tcc tca cag ctg ttt gcc aag ctg ctc cag        2400
Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu Gln
785             790             795             800

aaa atg aca gac ctc aga cag att gtc acg gaa cac gtg cag cta ctg        2448
Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu Leu
                805             810             815

cag gtg atc aag aag acg gag aca gac atg agt ctt cac ccg ctc ctg        2496
Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu Leu
                820             825             830

cag gag atc tac aag gac ttg tac tag                                     2523
Gln Glu Ile Tyr Lys Asp Leu Tyr  *
            835             840


        <210> 4
        <211> 840
        <212> PRT
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```
<213> Homo Sapiens


<400> 4
Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu
1               5                   10                  15
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
            20                  25                  30
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
        35                  40                  45
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
    50                  55                  60
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
            100                 105                 110
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
        115                 120                 125
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
    130                 135                 140
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165                 170                 175
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
            180                 185                 190
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
        195                 200                 205
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
    210                 215                 220
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225                 230                 235                 240
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245                 250                 255
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
            260                 265                 270
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
        275                 280                 285
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro
    290                 295                 300
Leu Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr
305                 310                 315                 320
Pro Cys Ser Leu Ser Ser Ser Ala Leu Leu Asp Leu Gln Gln Val Gly
                325                 330                 335
Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr
            340                 345                 350
Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Glu Met Thr Met Val Asp
        355                 360                 365
Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val Asp
    370                 375                 380
Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro Phe
385                 390                 395                 400
Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp Ile
                405                 410                 415
Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp Leu
```

```
                     420                     425                     430
    Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser Pro
                435                     440                     445
    Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu Glu
            450                     455                     460
    Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp Lys
    465                     470                     475                     480
    Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys Gly
                        485                     490                     495
    Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys Asp
                    500                     505                     510
    Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr Cys
                515                     520                     525
    Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile Arg
            530                     535                     540
    Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu Ile
    545                     550                     555                     560
    Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg Ala
                        565                     570                     575
    Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu Thr
                    580                     585                     590
    Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys Ser
                595                     600                     605
    Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp Lys
            610                     615                     620
    Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu Val
    625                     630                     635                     640
    Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala Val
                        645                     650                     655
    Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn Leu
                    660                     665                     670
    Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu Ile
                675                     680                     685
    Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu Ile
            690                     695                     700
    Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu Arg
    705                     710                     715                     720
    Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val Lys
                        725                     730                     735
    Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile Ala
                    740                     745                     750
    Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys Pro
                755                     760                     765
    Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln Leu
            770                     775                     780
    Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu Gln
    785                     790                     795                     800
    Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu Leu
                        805                     810                     815
    Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu Leu
                    820                     825                     830
    Gln Glu Ile Tyr Lys Asp Leu Tyr
                835                     840
```

```
<210> 5
<211> 2625
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```
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (1)...(2625)

<400> 5
atg cct cac aac tcc atc aga tct ggc cat gga ggg ctg aac cag ctg        48
Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu
1               5                   10                  15


gga ggg gcc ttt gtg aat ggc aga cct ctg ccg gaa gtg gtc cgc cag        96
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
                20                  25                  30


cgc atc gta gac ctg gcc cac cag ggt gta agg ccc tgc gac atc tct       144
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
            35                  40                  45


cgc cag ctc cgc gtc agc cat ggc tgc gtc agc aag atc ctt ggc agg       192
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
        50                  55                  60


tac tac gag act ggc agc atc cgg cct gga gtg ata ggg ggc tcc aag       240
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80


ccc aag gtg gcc acc ccc aag gtg gtg gag aag att ggg gac tac aaa       288
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95


cgc cag aac cct acc atg ttt gcc tgg gag atc cga gac cgg ctc ctg       336
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
                100                 105                 110


gct gag ggc gtc tgt gac aat gac act gtg ccc agt gtc agc tcc att       384
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
            115                 120                 125


aat aga atc atc cgg acc aaa gtg cag caa cca ttc aac ctc cct atg       432
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
        130                 135                 140


gac agc tgc gtg gcc acc aag tcc ctg agt ccc gga cac acg ctg atc       480
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160


ccc agc tca gct gta act ccc ccg gag tca ccc cag tcg gat tcc ctg       528
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165                 170                 175


ggc tcc acc tac tcc atc aat ggg ctc ctg ggc atc gct cag cct ggc       576
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
                180                 185                 190
```

```
agc gac aag agg aaa atg gat gac agt gat cag gat agc tgc cga cta          624
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
        195             200             205

agc att gac tca cag agc agc agc agc gga ccc cga aag cac ctt cgc          672
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
    210             215             220

acg gat gcc ttc agc cag cac cac ctc gag ccg ctc gag tgc cca ttt         720
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225             230             235             240

gag cgg cag cac tac cca gag gcc tat gcc tcc ccc agc cac acc aaa        768
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245             250             255

ggc gag cag ggc ctc tac ccg ctg ccc ttg ctc aac agc acc ctg gac        816
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
                260             265             270

gac ggg aag gcc acc ctg acc cct tcc aac acg cca ctg ggg cgc aac        864
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
            275             280             285

ctc tcg act cac cag acc tac ccc gtg gtg gca gat cct cac tca ccc        912
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro
    290             295             300

ttg gcc ata aag cag gaa acc ccc gag gtg tcc agt tct agc tcc acc        960
Leu Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr
305             310             315             320

cct tgc tct tta tct agc tcc gcc ctt ttg gat ctg cag caa gtc ggc       1008
Pro Cys Ser Leu Ser Ser Ser Ala Leu Leu Asp Leu Gln Gln Val Gly
                325             330             335

tcc ggg gtc ccg ccc ttc aat gcc ttt ccc cat gct gcc tcc gtg tac       1056
Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr
            340             345             350

ggg cag ttc acg ggc cag gcc ctc ctc tca ggg cga gag atg gtg ggg       1104
Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Gly Arg Glu Met Val Gly
            355             360             365

ccc acg ctg ccc gga tac cca ccc cac atc ccc acc agc gga cag ggc       1152
Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln Gly
    370             375             380

agc tat gcc tcc tct gcc atc gca ggc atg gtg gca gaa atg acc atg       1200
Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Glu Met Thr Met
385             390             395             400

gtt gac aca gag atg cca ttc tgg ccc acc aac ttt ggg atc agc tcc       1248
Val Asp Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser
            405             410             415
```

```
gtg gat ctc tcc gta atg gaa gac cac tcc cac tcc ttt gat atc aag    1296
Val Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys
            420                 425                 430

ccc ttc act act gtt gac ttc tcc agc att tct act cca cat tac gaa    1344
Pro Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu
            435                 440                 445

gac att cca ttc aca aga aca gat cca gtg gtt gca gat tac aag tat    1392
Asp Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr
    450                 455                 460

gac ctg aaa ctt caa gag tac caa agt gca atc aaa gtg gag cct gca    1440
Asp Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala
465                 470                 475                 480

tct cca cct tat tat tct gag aag act cag ctc tac aat aag cct cat    1488
Ser Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His
                485                 490                 495

gaa gag cct tcc aac tcc ctc atg gca att gaa tgt cgt gtc tgt gga    1536
Glu Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly
            500                 505                 510

gat aaa gct tct gga ttt cac tat gga gtt cat gct tgt gaa gga tgc    1584
Asp Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys
            515                 520                 525

aag ggt ttc ttc cgg aga aca atc aga ttg aag ctt atc tat gac aga    1632
Lys Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg
            530                 535                 540

tgt gat ctt aac tgt cgg atc cac aaa aaa agt aga aat aaa tgt cag    1680
Cys Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln
545                 550                 555                 560

tac tgt cgg ttt cag aaa tgc ctt gca gtg ggg atg tct cat aat gcc    1728
Tyr Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala
                565                 570                 575

atc agg ttt ggg cgg atg cca cag gcc gag aag gag aag ctg ttg gcg    1776
Ile Arg Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala
                580                 585                 590

gag atc tcc agt gat atc gac cag ctg aat cca gag tcc gct gac ctc    1824
Glu Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu
            595                 600                 605

cgg gcc ctg gca aaa cat ttg tat gac tca tac ata aag tcc ttc ccg    1872
Arg Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro
            610                 615                 620

ctg acc aaa gca aag gcg agg gcg atc ttg aca gga aag aca aca gac    1920
Leu Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp
625                 630                 635                 640
```

```
aaa tca cca ttc gtt atc tat gac atg aat tcc tta atg atg gga gaa        1968
Lys Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu
                645                 650                 655

gat aaa atc aag ttc aaa cac atc acc ccc ctg cag gag cag agc aaa        2016
Asp Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys
                660                 665                 670

gag gtg gcc atc cgc atc ttt cag ggc tgc cag ttt cgc tcc gtg gag        2064
Glu Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu
                675                 680                 685

gct gtg cag gag atc aca gag tat gcc aaa agc att cct ggt ttt gta        2112
Ala Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val
                690                 695                 700

aat ctt gac ttg aac gac caa gta act ctc ctc aaa tat gga gtc cac        2160
Asn Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His
705                 710                 715                 720

gag atc att tac aca atg ctg gcc tcc ttg atg aat aaa gat ggg gtt        2208
Glu Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val
                725                 730                 735

ctc ata tcc gag ggc caa ggc ttc atg aca agg gag ttt cta aag agc        2256
Leu Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser
                740                 745                 750

ctg cga aag cct ttt ggt gac ttt atg gag ccc aag ttt gag ttt gct        2304
Leu Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala
                755                 760                 765

gtg aag ttc aat gca ctg gaa tta gat gac agc gac ttg gca ata ttt        2352
Val Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe
                770                 775                 780

att gct gtc att att ctc agt gga gac cgc cca ggt ttg ctg aat gtg        2400
Ile Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val
785                 790                 795                 800

aag ccc att gaa gac att caa gac aac ctg cta caa gcc ctg gag ctc        2448
Lys Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu
                805                 810                 815

cag ctg aag ctg aac cac cct gag tcc tca cag ctg ttt gcc aag ctg        2496
Gln Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu
                820                 825                 830

ctc cag aaa atg aca gac ctc aga cag att gtc acg gaa cac gtg cag        2544
Leu Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln
                835                 840                 845

cta ctg cag gtg atc aag aag acg gag aca gac atg agt ctt cac ccg        2592
Leu Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro
                850                 855                 860
```

```
ctc ctg cag gag atc tac aag gac ttg tac tag                          2625
Leu Leu Gln Glu Ile Tyr Lys Asp Leu Tyr  *
865                 870
```

```
<210> 6
<211> 874
<212> PRT
<213> Homo Sapiens

<400> 6
Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu
1               5                   10                  15
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
                20                  25                  30
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
            35                  40                  45
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
        50                  55                  60
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
            100                 105                 110
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
        115                 120                 125
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
    130                 135                 140
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160
Pro Ser Ser Ala Val Thr Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165                 170                 175
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
            180                 185                 190
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
        195                 200                 205
Ser Ile Asp Ser Gln Ser Ser Ser Gly Pro Arg Lys His Leu Arg
    210                 215                 220
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225                 230                 235                 240
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245                 250                 255
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
            260                 265                 270
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
        275                 280                 285
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro
    290                 295                 300
Leu Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr
305                 310                 315                 320
Pro Cys Ser Leu Ser Ser Ser Ala Leu Leu Asp Leu Gln Gln Val Gly
                325                 330                 335
Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr
            340                 345                 350
Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Gly Arg Glu Met Val Gly
```

```
          355                       360                       365
Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln Gly
    370                   375                   380
Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Glu Met Thr Met
385                   390                   395                   400
Val Asp Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser
                405                   410                   415
Val Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys
                420                   425                   430
Pro Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu
        435                   440                   445
Asp Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr
    450                   455                   460
Asp Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala
465                   470                   475                   480
Ser Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His
                485                   490                   495
Glu Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly
                500                   505                   510
Asp Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys
        515                   520                   525
Lys Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg
    530                   535                   540
Cys Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln
545                   550                   555                   560
Tyr Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala
                565                   570                   575
Ile Arg Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala
        580                   585                   590
Glu Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu
    595                   600                   605
Arg Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro
    610                   615                   620
Leu Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp
625                   630                   635                   640
Lys Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu
                645                   650                   655
Asp Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys
            660                   665                   670
Glu Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu
        675                   680                   685
Ala Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val
        690                   695                   700
Asn Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His
705                   710                   715                   720
Glu Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val
                725                   730                   735
Leu Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser
            740                   745                   750
Leu Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala
            755                   760                   765
Val Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe
    770                   775                   780
Ile Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val
785                   790                   795                   800
Lys Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu
```

```
                         805                      810                      815
Gln Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu
            820                      825                      830
Leu Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln
        835                      840                      845
Leu Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro
    850                      855                      860
Leu Leu Gln Glu Ile Tyr Lys Asp Leu Tyr
865                      870
```

```
    <210> 7
    <211> 42
    <212> DNA
    <213> Homo Sapiens


    <220>
    <221> CDS
    <222> (3)...(41)


    <400> 7
ag acc tac ccc gtg gtg gca gaa atg acc atg gtt gac aca g          42
    Thr Tyr Pro Val Val Ala Glu Met Thr Met Val Asp Thr
    1               5                   10



    <210> 8
    <211> 13
    <212> PRT
    <213> Homo Sapiens


    <400> 8
Thr Tyr Pro Val Val Ala Glu Met Thr Met Val Asp Thr
    1               5                   10


    <210> 9
    <211> 42
    <212> DNA
    <213> Homo Sapiens


    <220>
    <221> CDS
    <222> (3)...(41)


    <400> 9
cg ggc cag gcc ctc ctc tca gaa atg acc atg gtt gac aca g          42
    Gly Gln Ala Leu Leu Ser Glu Met Thr Met Val Asp Thr
    1               5                   10



    <210> 10
    <211> 13
    <212> PRT
    <213> Homo Sapiens


    <400> 10
Gly Gln Ala Leu Leu Ser Glu Met Thr Met Val Asp Thr
```

1   5   10

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        <210> 11
        <211> 42
        <212> DNA
        <213> Homo Sapiens

        <220>
        <221> CDS
        <222> (3)...(41)

        <400> 11
cc atc gca ggc atg gtg gca gaa atg acc atg gtt gac aca g              42
   Ile Ala Gly Met Val Ala Glu Met Thr Met Val Asp Thr
   1               5                 10


        <210> 12
        <211> 13
        <212> PRT
        <213> Homo Sapiens

        <400> 12
Ile Ala Gly Met Val Ala Glu Met Thr Met Val Asp Thr
1               5                 10

        <210> 13
        <211> 2711
        <212> DNA
        <213> Homo Sapiens

        <220>
        <221> CDS
        <222> (11)...(1363)

        <400> 13
gaattcggcg atg cct cac aac tcc atc aga tct ggc cat gga ggg ctg        49
           Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu
             1               5                 10


aac cag ctg gga ggg gcc ttt gtg aat ggc aga cct ctg ccg gaa gtg      97
Asn Gln Leu Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val
    15                  20                  25


gtc cgc cag cgc atc gta gac ctg gcc cac cag ggt gta agg ccc tgc     145
Val Arg Gln Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys
30                  35                  40                  45

gac atc tct cgc cag ctc cgc gtc agc cat ggt tgc gtc agc aag atc     193
Asp Ile Ser Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile
                50                  55                  60


ctt ggc agg tac tac gag act ggc agc atc cgg cct gga gtg ata ggg     241
Leu Gly Arg Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly
                65                  70                  75
```

```
ggc tcc aag ccc aag gtg gcc acc ccc aag gtg gtg gag aag att ggg     289
Gly Ser Lys Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly
         80                  85                  90

gac tac aaa cgc cag aac cct acc atg ttt gcc tgg gag atc cga gac     337
Asp Tyr Lys Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp
         95                 100                 105

cgg ctc ctg gct gag ggc gtc tgt gac aat gac act gtg ccc agt gtc     385
Arg Leu Leu Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val
110                 115                 120                 125

agc tcc att aat aga atc atc cgg acc aaa gtg cag caa cca ttc aac     433
Ser Ser Ile Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn
                130                 135                 140

ctc cct atg gac agc tgc gtg gcc acc aag tcc ctg agt ccc gga cac     481
Leu Pro Met Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His
                145                 150                 155

acg ctg atc ccc agc tca gct gta act ccc ccg gag tca ccc cag tcg     529
Thr Leu Ile Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser
                160                 165                 170

gat tcc ctg ggc tcc acc tac tcc atc aat ggg ctc ctg ggc atc gct     577
Asp Ser Leu Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala
         175                 180                 185

cag cct ggc agc gac aag agg aaa atg gat gac agt gat cag gat agc     625
Gln Pro Gly Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser
190                 195                 200                 205

tgc cga cta agc att gac tca cag agc agc agc agc gga ccc cga aag     673
Cys Arg Leu Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys
                210                 215                 220

cac ctt cgc acg gat gcc ttc agc cag cac cac ctc gag ccg ctc gag     721
His Leu Arg Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu
                225                 230                 235

tgc cca ttt gag cgg cag cac tac cca gag gcc tat gcc tcc ccc agc     769
Cys Pro Phe Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser
         240                 245                 250

cac acc aaa ggc gag cag ggc ctc tac ccg ctg ccc ttg ctc aac agc     817
His Thr Lys Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser
         255                 260                 265

acc ctg gac gac ggg aag gcc acc ctg acc cct tcc aac acg cca ctg     865
Thr Leu Asp Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu
270                 275                 280                 285

ggg cgc aac ctc tcg act cac cag acc tac ccc gtg gtg gca gat cct     913
Gly Arg Asn Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro
                290                 295                 300
```

```
cac tca ccc ttc gcc ata aag cag gaa acc ccc gag gtg tcc agt tct          961
His Ser Pro Phe Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser
            305                 310                 315

agc tcc acc cct tcc tct tta tct agc tcc gcc ttt ttg gat ctg cag         1009
Ser Ser Thr Pro Ser Ser Leu Ser Ser Ser Ala Phe Leu Asp Leu Gln
            320                 325                 330

caa gtc ggc tcc ggg gtc ccg ccc ttc aat gcc ttt ccc cat gct gcc         1057
Gln Val Gly Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala
            335                 340                 345

tcc gtg tac ggg cag ttc acg ggc cag gcc ctc ctc tca ggg cga gag         1105
Ser Val Tyr Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Gly Arg Glu
350                 355                 360                 365

atg gtg ggg ccc acg ctg ccc gga tac cca ccc cac atc ccc acc agc         1153
Met Val Gly Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser
            370                 375                 380

gga cag ggc agc tat gcc tcc tct gcc atc gca ggc atg gtg gca gga         1201
Gly Gln Gly Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Gly
            385                 390                 395

agt gaa tac tct ggc aat gcc tat ggc cac acc ccc tac tcc tcc tac         1249
Ser Glu Tyr Ser Gly Asn Ala Tyr Gly His Thr Pro Tyr Ser Ser Tyr
            400                 405                 410

agc gag gcc tgg cgc ttc ccc aac tcc agc ttg ctg agt tcc cca tat         1297
Ser Glu Ala Trp Arg Phe Pro Asn Ser Ser Leu Leu Ser Ser Pro Tyr
            415                 420                 425

tat tac agt tcc aca tca agg ccg agt gca ccg ccc acc act gcc acg         1345
Tyr Tyr Ser Ser Thr Ser Arg Pro Ser Ala Pro Pro Thr Thr Ala Thr
430                 435                 440                 445

gcc ttt gac cat ctg tag ttgaagctt                                        1372
Ala Phe Asp His Leu *
            450


        <210> 14
        <211> 450
        <212> PRT
        <213> Homo Sapiens

        <400> 14
Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu
1               5                   10                  15
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
            20                  25                  30
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
            35                  40                  45
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
            50                  55                  60
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
```

```
65                      70                      75                      80
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                 85                      90                      95
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
             100                     105                     110
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
         115                     120                     125
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
     130                     135                     140
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                     150                     155                     160
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                 165                     170                     175
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
             180                     185                     190
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
         195                     200                     205
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
     210                     215                     220
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225                     230                     235                     240
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                 245                     250                     255
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
             260                     265                     270
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
         275                     280                     285
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro
     290                     295                     300
Phe Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr
305                     310                     315                     320
Pro Ser Ser Leu Ser Ser Ser Ala Phe Leu Asp Leu Gln Gln Val Gly
                 325                     330                     335
Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr
             340                     345                     350
Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Gly Arg Glu Met Val Gly
         355                     360                     365
Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln Gly
     370                     375                     380
Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Gly Ser Glu Tyr
385                     390                     395                     400
Ser Gly Asn Ala Tyr Gly His Thr Pro Tyr Ser Ser Tyr Ser Glu Ala
                 405                     410                     415
Trp Arg Phe Pro Asn Ser Ser Leu Leu Ser Ser Pro Tyr Tyr Tyr Ser
             420                     425                     430
Ser Thr Ser Arg Pro Ser Ala Pro Pro Thr Thr Ala Thr Ala Phe Asp
     435                     440                     445
His Leu
    450
```

```
        <221> CDS
        <222> (91)...(1608)

        <400> 15
tccggttttt ttcttttaac ggattgatct tttgctagat agagacaaaa tatcagtgtg        60
aattacagca aacccctatt ccatgctgtt atg ggt gaa act ctg gga gat tct       114
                                    Met Gly Glu Thr Leu Gly Asp
                                     1               5


cct att gac cca gaa agc gat tcc ttc act gat aca ctg tct gca aac       162
Ser


ata tca caa gaa atg acc atg gtt gac aca gag atg cca ttc tgg ccc       210
Pro Ile Asp Pro Glu Ser Asp Ser Phe Thr Asp Thr Leu Ser Ala Asn
     10              15                  20


acc aac ttt ggg atc agc tcc gtg gat ctc tcc gta atg gaa gac cac       258
Ile Ser Gln Glu Met Thr Met Val Asp Thr Glu Met Pro Phe Trp Pro
 25              30                  35                      40


tcc cac tcc ttt gat atc aag ccc ttc act act gtt gac ttc tcc agc       306
Thr Asn Phe Gly Ile Ser Ser Val Asp Leu Ser Val Met Glu Asp His
                 45                  50                  55


att tct act cca cat tac gaa gac att cca ttc aca aga aca gat cca       354
Ser His Ser Phe Asp Ile Lys Pro Phe Thr Thr Val Asp Phe Ser Ser
                 60                  65                  70


gtg gtt gca gat tac aag tat gac ctg aaa ctt caa gag tac caa agt       402
Ile Ser Thr Pro His Tyr Glu Asp Ile Pro Phe Thr Arg Thr Asp Pro
             75                  80                  85


gca atc aaa gtg gag cct gca tct cca cct tat tat tct gag aag act       450
Val Val Ala Asp Tyr Lys Tyr Asp Leu Lys Leu Gln Glu Tyr Gln Ser
         90                  95                  100


cag ctc tac aat aag cct cat gaa gag cct tcc aac tcc ctc atg gca       498
Ala Ile Lys Val Glu Pro Ala Ser Pro Pro Tyr Tyr Ser Glu Lys Thr
105                  110                  115                  120


att gaa tgt cgt gtc tgt gga gat aaa gct tct gga ttt cac tat gga       546
Gln Leu Tyr Asn Lys Pro His Glu Glu Pro Ser Asn Ser Leu Met Ala
                 125                  130                  135


gtt cat gct tgt gaa gga tgc aag ggt ttc ttc cgg aga aca atc aga       594
Ile Glu Cys Arg Val Cys Gly Asp Lys Ala Ser Gly Phe His Tyr Gly
             140                  145                  150


ttg aag ctt atc tat gac aga tgt gat ctt aac tgt cgg atc cac aaa       642
Val His Ala Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Thr Ile Arg
             155                  160                  165


aaa agt aga aat aaa tgt cag tac tgt cgg ttt cag aaa tgc ctt gca       690
Leu Lys Leu Ile Tyr Asp Arg Cys Asp Leu Asn Cys Arg Ile His Lys
         170                  175                  180
```

```
gtg ggg atg tct cat aat gcc atc agg ttt ggg cgg atg cca cag gcc        738
Lys Ser Arg Asn Lys Cys Gln Tyr Cys Arg Phe Gln Lys Cys Leu Ala
185                 190                 195                 200

gag aag gag aag ctg ttg gcg gag atc tcc agt gat atc gac cag ctg        786
Val Gly Met Ser His Asn Ala Ile Arg Phe Gly Arg Met Pro Gln Ala
                    205                 210                 215

aat cca gag tcc gct gac ctc cgg gcc ctg gca aaa cat ttg tat gac        834
Glu Lys Glu Lys Leu Leu Ala Glu Ile Ser Ser Asp Ile Asp Gln Leu
                    220                 225                 230

tca tac ata aag tcc ttc ccg ctg acc aaa gca aag gcg agg gcg atc        882
Asn Pro Glu Ser Ala Asp Leu Arg Ala Leu Ala Lys His Leu Tyr Asp
                235                 240                 245

ttg aca gga aag aca aca gac aaa tca cca ttc gtt atc tat gac atg        930
Ser Tyr Ile Lys Ser Phe Pro Leu Thr Lys Ala Lys Ala Arg Ala Ile
                250                 255                 260

aat tcc tta atg atg gga gaa gat aaa atc aag ttc aaa cac atc acc        978
Leu Thr Gly Lys Thr Thr Asp Lys Ser Pro Phe Val Ile Tyr Asp Met
265                 270                 275                 280

ccc ctg cag gag cag agc aaa gag gtg gcc atc cgc atc ttt cag ggc       1026
Asn Ser Leu Met Met Gly Glu Asp Lys Ile Lys Phe Lys His Ile Thr
                    285                 290                 295

tgc cag ttt cgc tcc gtg gag gct gtg cag gag atc aca gag tat gcc       1074
Pro Leu Gln Glu Gln Ser Lys Glu Val Ala Ile Arg Ile Phe Gln Gly
                    300                 305                 310

aaa agc att cct ggt ttt gta aat ctt gac ttg aac gac caa gta act       1122
Cys Gln Phe Arg Ser Val Glu Ala Val Gln Glu Ile Thr Glu Tyr Ala
                315                 320                 325

ctc ctc aaa tat gga gtc cac gag atc att tac aca atg ctg gcc tcc       1170
Lys Ser Ile Pro Gly Phe Val Asn Leu Asp Leu Asn Asp Gln Val Thr
                330                 335                 340

ttg atg aat aaa gat ggg gtt ctc ata tcc gag ggc caa ggc ttc atg       1218
Leu Leu Lys Tyr Gly Val His Glu Ile Ile Tyr Thr Met Leu Ala Ser
345                 350                 355                 360

aca agg gag ttt cta aag agc ctg cga aag cct ttt ggt gac ttt atg       1266
Leu Met Asn Lys Asp Gly Val Leu Ile Ser Glu Gly Gln Gly Phe Met
                    365                 370                 375

gag ccc aag ttt gag ttt gct gtg aag ttc aat gca ctg gaa tta gat       1314
Thr Arg Glu Phe Leu Lys Ser Leu Arg Lys Pro Phe Gly Asp Phe Met
                    380                 385                 390

gac agc gac ttg gca ata ttt att gct gtc att att ctc agt gga gac       1362
Glu Pro Lys Phe Glu Phe Ala Val Lys Phe Asn Ala Leu Glu Leu Asp
                395                 400                 405
```

```
cgc cca ggt ttg ctg aat gtg aag ccc att gaa gac att caa gac aac    1410
Asp Ser Asp Leu Ala Ile Phe Ile Ala Val Ile Ile Leu Ser Gly Asp
    410                 415                 420

ctg cta caa gcc ctg gag ctc cag ctg aag ctg aac cac cct gag tcc    1458
Arg Pro Gly Leu Leu Asn Val Lys Pro Ile Glu Asp Ile Gln Asp Asn
425                 430                 435                 440

tca cag ctg ttt gcc aag ctg ctc cag aaa atg aca gac ctc aga cag    1506
Leu Leu Gln Ala Leu Glu Leu Gln Leu Lys Leu Asn His Pro Glu Ser
                445                 450                 455

att gtc acg gaa cac gtg cag cta ctg cag gtg atc aag aag acg gag    1554
Ser Gln Leu Phe Ala Lys Leu Leu Gln Lys Met Thr Asp Leu Arg Gln
                460                 465                 470

aca gac atg agt ctt cac ccg ctc ctg cag gag atc tac aag gac ttg    1602
Ile Val Thr Glu His Val Gln Leu Leu Gln Val Ile Lys Lys Thr Glu
                475                 480                 485

tac tag                                                            1608
Thr Asp Met Ser Leu His Pro Leu Leu Gln Glu Ile Tyr Lys Asp Leu
    490                 495                 500


        <210> 16
        <211> 505
        <212> PRT
        <213> Homo Sapiens

        <400> 16
Met Gly Glu Thr Leu Gly Asp Ser Pro Ile Asp Pro Glu Ser Asp Ser
1               5                   10                  15
Phe Thr Asp Thr Leu Ser Ala Asn Ile Ser Gln Glu Met Thr Met Val
                20                  25                  30
Asp Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val
            35                  40                  45
Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro
    50                  55                  60
Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp
65                  70                  75                  80
Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp
                85                  90                  95
Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser
                100                 105                 110
Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu
        115                 120                 125
Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp
    130                 135                 140
Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys
145                 150                 155                 160
Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys
                165                 170                 175
Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr
                180                 185                 190
```

```
Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile
        195                 200                 205
Arg Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu
    210                 215                 220
Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg
225                 230                 235                 240
Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu
            245                 250                 255
Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys
        260                 265                 270
Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp
        275                 280                 285
Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu
    290                 295                 300
Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala
305                 310                 315                 320
Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn
            325                 330                 335
Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu
        340                 345                 350
Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu
        355                 360                 365
Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu
    370                 375                 380
Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val
385                 390                 395                 400
Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile
            405                 410                 415
Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys
        420                 425                 430
Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln
        435                 440                 445
Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu
    450                 455                 460
Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu
465                 470                 475                 480
Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu
            485                 490                 495
Leu Gln Glu Ile Tyr Lys Asp Leu Tyr
            500                 505
```

```
        <210> 17
        <211> 21
        <212> DNA
        <213> Homo Sapiens

        <400> 17
gcattgactc acagagcagc a                                          21

        <210> 18
        <211> 18
        <212> DNA
        <213> Homo Sapiens

        <400> 18
gctcaacagc accctgga                                              18
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<210> 19
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 19
gcaacctctc gactcaccag   20

<210> 20
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 20
caaaggagtg ggagtggtct   20

<210> 21
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<212> DNA
<213> Homo Sapiens

<400> 21
cattacggag agatccacgg   20

<210> 22
<211> 2596
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (161)...(2596)

<400> 22
ttcagaagga ggagagacac cgggcccagg gcaccctcgc gggcgggcgg acccaagcag   60
tgagggcctg cagccggccg gccagggcag cggcaggcgc ggcccggacc tacgggagga   120
agccccgagc cctcggcggg ctgcgagcga ctccccggcg atg cct cac aac tcc   175
                                             Met Pro His Asn
                                              1

atc aga tct ggc cat gga ggg ctg aac cag ctg gga ggg gcc ttt gtg   223
Ser
 5

aat ggc aga cct ctg ccg gaa gtg gtc cgc cag cgc atc gta gac ctg   271
Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu Gly Gly Ala Phe Val
              10   15   20

gcc cac cag ggt gta agg ccc tgc gac atc tct cgc cag ctc cgc gtc   319
Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln Arg Ile Val Asp Leu
              25   30   35

agc cat ggc tgc gtc agc aag atc ctt ggc agg tac tac gag act ggc   367
Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser Arg Gln Leu Arg Val
              40   45   50

```
agc atc cgg cct gga gtg ata ggg ggc tcc aag ccc aag gtg gcc acc       415
Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg Tyr Tyr Glu Thr Gly
    55                  60                  65

ccc aag gtg gtg gag aag att ggg gac tac aaa cgc cag aac cct acc       463
Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys Pro Lys Val Ala Thr
70                  75                  80                  85

atg ttt gcc tgg gag atc cga gac cgg ctc ctg gct gag ggc gtc tgt       511
Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys Arg Gln Asn Pro Thr
                90                  95                 100

gac aat gac act gtg ccc agt gtc agc tcc att aat aga atc atc cgg       559
Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu Ala Glu Gly Val Cys
            105                 110                 115

acc aaa gtg cag caa cca ttc aac ctc cct atg gac agc tgc gtg gcc       607
Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile Asn Arg Ile Ile Arg
            120                 125                 130

acc aag tcc ctg agt ccc gga cac acg ctg atc ccc agc tca gct gta       655
Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met Asp Ser Cys Val Ala
        135                 140                 145

act ccc ccg gag tca ccc cag tcg gat tcc ctg ggc tcc acc tac tcc       703
Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile Pro Ser Ser Ala Val
150                 155                 160                 165

atc aat ggg ctc ctg ggc atc gct cag cct ggc agc gac aag agg aaa       751
Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu Gly Ser Thr Tyr Ser
                170                 175                 180

atg gat gac agt gat cag gat agc tgc cga cta agc att gac tca cag       799
Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly Ser Asp Lys Arg Lys
            185                 190                 195

agc agc agc agc gga ccc cga aag cac ctt cgc acg gat gcc ttc agc       847
Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu Ser Ile Asp Ser Gln
        200                 205                 210

cag cac cac ctc gag ccg ctc gag tgc cca ttt gag cgg cag cac tac       895
Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg Thr Asp Ala Phe Ser
    215                 220                 225

cca gag gcc tat gcc tcc ccc agc cac acc aaa ggc gag cag ggc ctc       943
Gln His His Leu Glu Pro Leu Glu Cys Pro Phe Glu Arg Gln His Tyr
230                 235                 240                 245

tac ccg ctg ccc ttg ctc aac agc acc ctg gac gac ggg aag gcc acc       991
Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys Gly Glu Gln Gly Leu
                250                 255                 260

ctg acc cct tcc aac acg cca ctg ggg cgc aac ctc tcg act cac cag      1039
Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp Asp Gly Lys Ala Thr
            265                 270                 275
```

```
acc tac ccc gtg gtg gca ggg cga gag atg gtg ggg ccc acg ctg ccc     1087
Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn Leu Ser Thr His Gln
        280             285             290

gga tac cca ccc cac atc ccc acc agc gga cag ggc agc tat gcc tcc     1135
Thr Tyr Pro Val Val Ala Gly Arg Glu Met Val Gly Pro Thr Leu Pro
        295             300             305

tct gcc atc gca ggc atg gtg gca gaa atg acc atg gtt gac aca gag     1183
Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln Gly Ser Tyr Ala Ser
310             315             320             325

atg cca ttc tgg ccc acc aac ttt ggg atc agc tcc gtg gat ctc tcc     1231
Ser Ala Ile Ala Gly Met Val Ala Glu Met Thr Met Val Asp Thr Glu
                330             335             340

gta atg gaa gac cac tcc cac tcc ttt gat atc aag ccc ttc act act     1279
Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser Ser Val Asp Leu Ser
                345             350             355

gtt gac ttc tcc agc att tct act cca cat tac gaa gac att cca ttc     1327
Val Met Glu Asp His Ser His Ser Phe Asp Ile Lys Pro Phe Thr Thr
                360             365             370

aca aga aca gat cca gtg gtt gca gat tac aag tat gac ctg aaa ctt     1375
Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr Glu Asp Ile Pro Phe
        375             380             385

caa gag tac caa agt gca atc aaa gtg gag cct gca tct cca cct tat     1423
Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys Tyr Asp Leu Lys Leu
390             395             400             405

tat tct gag aag act cag ctc tac aat aag cct cat gaa gag cct tcc     1471
Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro Ala Ser Pro Pro Tyr
                410             415             420

aac tcc ctc atg gca att gaa tgt cgt gtc tgt gga gat aaa gct tct     1519
Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro His Glu Glu Pro Ser
                425             430             435

gga ttt cac tat gga gtt cat gct tgt gaa gga tgc aag ggt ttc ttc     1567
Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys Gly Asp Lys Ala Ser
                440             445             450

cgg aga aca atc aga ttg aag ctt atc tat gac aga tgt gat ctt aac     1615
Gly Phe His Tyr Gly Val His Ala Cys Glu Gly Cys Lys Gly Phe Phe
        455             460             465

tgt cgg atc cac aaa aaa agt aga aat aaa tgt cag tac tgt cgg ttt     1663
Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp Arg Cys Asp Leu Asn
470             475             480             485

cag aaa tgc ctt gca gtg ggg atg tct cat aat gcc atc agg ttt ggg     1711
Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys Gln Tyr Cys Arg Phe
                490             495             500
```

```
cgg atg cca cag gcc gag aag gag aag ctg ttg gcg gag atc tcc agt      1759
Gln Lys Cys Leu Ala Val Gly Met Ser His Asn Ala Ile Arg Phe Gly
            505                 510                 515

gat atc gac cag ctg aat cca gag tcc gct gac ctc cgg gcc ctg gca      1807
Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu Ala Glu Ile Ser Ser
            520                 525                 530

aaa cat ttg tat gac tca tac ata aag tcc ttc ccg ctg acc aaa gca      1855
Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp Leu Arg Ala Leu Ala
            535                 540                 545

aag gcg agg gcg atc ttg aca gga aag aca aca gac aaa tca cca ttc      1903
Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe Pro Leu Thr Lys Ala
550                 555                 560                 565

gtt atc tat gac atg aat tcc tta atg atg gga gaa gat aaa atc aag      1951
Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr Asp Lys Ser Pro Phe
                    570                 575                 580

ttc aaa cac atc acc ccc ctg cag gag cag agc aaa gag gtg gcc atc      1999
Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly Glu Asp Lys Ile Lys
                    585                 590                 595

cgc atc ttt cag ggc tgc cag ttt cgc tcc gtg gag gct gtg cag gag      2047
Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser Lys Glu Val Ala Ile
                600                 605                 610

atc aca gag tat gcc aaa agc att cct ggt ttt gta aat ctt gac ttg      2095
Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val Glu Ala Val Gln Glu
            615                 620                 625

aac gac caa gta act ctc ctc aaa tat gga gtc cac gag atc att tac      2143
Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe Val Asn Leu Asp Leu
630                 635                 640                 645

aca atg ctg gcc tcc ttg atg aat aaa gat ggg gtt ctc ata tcc gag      2191
Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val His Glu Ile Ile Tyr
                650                 655                 660

ggc caa ggc ttc atg aca agg gag ttt cta aag agc ctg cga aag cct      2239
Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly Val Leu Ile Ser Glu
                665                 670                 675

ttt ggt gac ttt atg gag ccc aag ttt gag ttt gct gtg aag ttc aat      2287
Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys Ser Leu Arg Lys Pro
                680                 685                 690

gca ctg gaa tta gat gac agc gac ttg gca ata ttt att gct gtc att      2335
Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe Ala Val Lys Phe Asn
                695                 700                 705

att ctc agt gga gac cgc cca ggt ttg ctg aat gtg aag ccc att gaa      2383
Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile Phe Ile Ala Val Ile
710                 715                 720                 725
```

```
gac att caa gac aac ctg cta caa gcc ctg gag ctc cag ctg aag ctg       2431
Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn Val Lys Pro Ile Glu
                730                 735                 740

aac cac cct gag tcc tca cag ctg ttt gcc aag ctg ctc cag aaa atg       2479
Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu Leu Gln Leu Lys Leu
                745                 750                 755

aca gac ctc aga cag att gtc acg gaa cac gtg cag cta ctg cag gtg       2527
Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys Leu Leu Gln Lys Met
                760                 765                 770

atc aag aag acg gag aca gac atg agt ctt cac ccg ctc ctg cag gag       2575
Thr Asp Leu Arg Gln Ile Val Thr Glu His Val Gln Leu Leu Gln Val
                775                 780                 785

atc tac aag gac ttg tac tag                                           2596
Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His Pro Leu Leu Gln Glu
790                 795                 800                 805


        <210> 23
        <211> 811
        <212> PRT
        <213> Homo Sapiens

        <400> 23
Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu
1               5               10                  15
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
            20                  25                  30
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
        35                  40                  45
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
        50                  55                  60
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
            100                 105                 110
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
        115                 120                 125
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
        130                 135                 140
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
            165                 170                 175
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
            180                 185                 190
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
        195                 200                 205
Ser Ile Asp Ser Gln Ser Ser Ser Gly Pro Arg Lys His Leu Arg
        210                 215                 220
```

```
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225                     230             235                     240
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245             250                     255
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
                260             265                     270
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
                275             280                     285
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Gly Arg Glu Met Val
        290             295             300
Gly Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln
305             310             315                     320
Gly Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Glu Met Thr
                325             330                     335
Met Val Asp Thr Glu Met Pro Phe Trp Pro Thr Asn Phe Gly Ile Ser
        340             345             350
Ser Val Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile
        355             360             365
Lys Pro Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr
    370             375             380
Glu Asp Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys
385             390             395                     400
Tyr Asp Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro
            405             410             415
Ala Ser Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro
            420             425             430
His Glu Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys
        435             440             445
Gly Asp Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly
    450             455             460
Cys Lys Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp
465             470             475                     480
Arg Cys Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys
            485             490                     495
Gln Tyr Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn
            500             505             510
Ala Ile Arg Phe Gly Arg Met Pro Gln Ala Glu Lys Glu Lys Leu Leu
        515             520             525
Ala Glu Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp
    530             535             540
Leu Arg Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser Phe
545             550             555                     560
Pro Leu Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr Thr
            565             570                     575
Asp Lys Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met Gly
            580             585                     590
Glu Asp Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln Ser
            595             600                     605
Lys Glu Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser Val
    610             615             620
Glu Ala Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly Phe
625             630             635                     640
Val Asn Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly Val
            645             650                     655
His Glu Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp Gly
            660             665                     670
```

```
Val Leu Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu Lys
        675                 680                 685
Ser Leu Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu Phe
    690                 695                 700
Ala Val Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala Ile
705                 710                 715                 720
Phe Ile Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu Asn
                725                 730                 735
Val Lys Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu Glu
                740                 745                 750
Leu Gln Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala Lys
        755                 760                 765
Leu Leu Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His Val
    770                 775                 780
Gln Leu Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu His
785                 790                 795                 800
Pro Leu Leu Gln Glu Ile Tyr Lys Asp Leu Tyr
                805                 810
```

```
<210> 24
<211> 2711
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (161)...(1510)

<400> 24
ttcagaagga ggagagacac cgggcccagg gcaccctcgc gggcgggcgg acccaagcag        60
tgagggcctg cagccggccg gccagggcag cggcaggcgc ggcccggacc tacgggagga       120
agccccgagc cctcggcggg ctgcgagcga ctccccggcg atg cct cac aac tcc        175
                                              Met Pro His Asn Ser
                                                1                 5

atc aga tct ggc cat gga ggg ctg aac cag ctg gga ggg gcc ttt gtg       223
Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu Gly Gly Ala Phe Val
                    10                  15                  20

aat ggc aga cct ctg ccg gaa gtg gtc cgc cag cgc atc gta gac ctg       271
Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln Arg Ile Val Asp Leu
                25                  30                  35

gcc cac cag ggt gta agg ccc tgc gac atc tct cgc cag ctc cgc gtc       319
Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser Arg Gln Leu Arg Val
            40                  45                  50

agc cat ggc tgc gtc agc aag atc ctt ggc agg tac tac gag act ggc       367
Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg Tyr Tyr Glu Thr Gly
        55                  60                  65

agc atc cgg cct gga gtg ata ggg ggc tcc aag ccc aag gtg gcc acc       415
Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys Pro Lys Val Ala Thr
70                  75                  80                  85

ccc aag gtg gtg gag aag att ggg gac tac aaa cgc cag aac cct acc       463
```

```
Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys Arg Gln Asn Pro Thr
            90                  95                 100


atg ttt gcc tgg gag atc cga gac cgg ctc ctg gct gag ggc gtc tgt    511
Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu Ala Glu Gly Val Cys
            105             110             115


gac aat gac act gtg ccc agt gtc agc tcc att aat aga atc atc cgg    559
Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile Asn Arg Ile Ile Arg
            120             125             130


acc aaa gtg cag caa cca ttc aac ctc cct atg gac agc tgc gtg gcc    607
Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met Asp Ser Cys Val Ala
    135             140             145


acc aag tcc ctg agt ccc gga cac acg ctg atc ccc agc tca gct gta    655
Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile Pro Ser Ser Ala Val
150             155             160             165


act ccc ccg gag tca ccc cag tcg gat tcc ctg ggc tcc acc tac tcc    703
Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu Gly Ser Thr Tyr Ser
            170             175             180


atc aat ggg ctc ctg ggc atc gct cag cct ggc agc gac aag agg aaa    751
Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly Ser Asp Lys Arg Lys
            185             190             195


atg gat gac agt gat cag gat agc tgc cga cta agc att gac tca cag    799
Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu Ser Ile Asp Ser Gln
            200             205             210


agc agc agc agc gga ccc cga aag cac ctt cgc acg gat gcc ttc agc    847
Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg Thr Asp Ala Phe Ser
    215             220             225


cag cac cac ctc gag ccg ctc gag tgc cca ttt gag cgg cag cac tac    895
Gln His His Leu Glu Pro Leu Glu Cys Pro Phe Glu Arg Gln His Tyr
230             235             240             245


cca gag gcc tat gcc tcc ccc agc cac acc aaa ggc gag cag ggc ctc    943
Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys Gly Glu Gln Gly Leu
            250             255             260


tac ccg ctg ccc ttg ctc aac agc acc ctg gac gac ggg aag gcc acc    991
Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp Asp Gly Lys Ala Thr
            265             270             275


ctg acc cct tcc aac acg cca ctg ggg cgc aac ctc tcg act cac cag   1039
Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn Leu Ser Thr His Gln
            280             285             290


acc tac ccc gtg gtg gca gat cct cac tca ccc ttg gcc ata aag cag   1087
Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro Leu Ala Ile Lys Gln
            295             300             305


gaa acc ccc gag gtg tcc agt tct agc tcc acc cct tgc tct tta tct   1135
```

```
Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr Pro Cys Ser Leu Ser
310             315             320                 325


agc tcc gcc ctt ttg gat ctg cag caa gtc ggc tcc ggg gtc ccg ccc    1183
Ser Ser Ala Leu Leu Asp Leu Gln Gln Val Gly Ser Gly Val Pro Pro
                330             335                 340


ttc aat gcc ttt ccc cat gct gcc tcc gtg tac ggg cag ttc acg ggc    1231
Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr Gly Gln Phe Thr Gly
                345             350                 355


cag gcc ctc ctc tca ggg cga gag atg gtg ggg ccc acg ctg ccc gga    1279
Gln Ala Leu Leu Ser Gly Arg Glu Met Val Gly Pro Thr Leu Pro Gly
            360             365             370


tac cca ccc cac atc ccc acc agc gga cag ggc agc tat gcc tcc tct    1327
Tyr Pro Pro His Ile Pro Thr Ser Gly Gln Gly Ser Tyr Ala Ser Ser
            375             380             385


gcc atc gca ggc atg gtg gca gga agt gaa tac tct ggc aat gcc tat    1375
Ala Ile Ala Gly Met Val Ala Gly Ser Glu Tyr Ser Gly Asn Ala Tyr
390             395             400                 405


ggc cac acc ccc tac tcc tcc tac agc gag gcc tgg ggc ttc ccc aac    1423
Gly His Thr Pro Tyr Ser Ser Tyr Ser Glu Ala Trp Gly Phe Pro Asn
                410             415                 420


tcc agc ttg ctg agt tcc cca tat tat tac agt tcc aca tca agg ccg    1471
Ser Ser Leu Leu Ser Ser Pro Tyr Tyr Tyr Ser Ser Thr Ser Arg Pro
            425             430                 435


agt gca ccg ccc acc act gcc acg gcc ttt gac cat ctg tagttgccat    1520
Ser Ala Pro Pro Thr Thr Ala Thr Ala Phe Asp His Leu
            440             445             450


gggacagtg ggagcgactg agcaacagga ggactcagcc tgggacaggc cccagagagt    1580
cacacaaagg aatctttatt attacatgaa aaataaccac aagtccagca ttgcggcaca    1640
ctccctgtgt ggttaattta atgaaccatg aaagacagga tgaccttgga caaggccaaa    1700
ctgtcctcca agactcctta atgaggggca ggagtcccag ggaaagagaa ccatgccatg    1760
ctgaaaaaga caaaattgaa gaagaaatgt agccccagcc ggtaccctcc aaaggagaga    1820
agaagcaata gccgaggaac ttggggggat ggcgaatggt tcctgcccgg gcccaagggt    1880
gcacagggca cctccatggc tccattatta acacaactct agcaattatg gaccataagc    1940
acttccctcc agcccacaag tcacagcctg gtgccgaggc tctgctcacc agccacccag    2000
ggagtcacct ccctcagcct cccgcctgcc ccacacggag gctctggctg tcctctttcc    2060
tccactccat ttgcttggct ctttctacac ctccctcttg gatgggctga gggctggagc    2120
gagtccctca gaaattccac caggctgtca gctgacctct ttttcctgct gctgtgaagg    2180
tatagcacca cccaggtcct cctgcagtgc ggcatcccct ggcagctgc cgtcagccag    2240
gccagcccca gggagcttaa aacagacatt ccacagggcc tgggcccctg ggaggtgagg    2300
tgtggtgtgc ggcttcaccc agggcagaac aaggcagaat cgcaggaaac ccgcttcccc    2360
ttcctgacag ctcctgccaa gccaaatgtg cttcctgcag ctcacgccca ccagctactg    2420
aagggaccca aggcacccc tgaagccagc gatagagggt ccctctctgc tccccagcag    2480
ctcctgcccc caaggcctga ctgtatatac tgtaaatgaa actttgtttg ggtcaagctt    2540
ccttctttct aacccccaga ctttggcctc tgagtgaaat gtctctcttt gccctgtggg    2600
gcttctctcc ttgatgcttc tttctttttt taaagacaac ctgccattac cacatgactc    2660
aataaaccat tgctcttcaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaa a               2711
```

```
<210> 25
<211> 450
<212> PRT
<213> Homo Sapiens

<400> 25
Met Pro His Asn Ser Ile Arg Ser Gly His Gly Gly Leu Asn Gln Leu
1               5                   10                  15
Gly Gly Ala Phe Val Asn Gly Arg Pro Leu Pro Glu Val Val Arg Gln
                20                  25                  30
Arg Ile Val Asp Leu Ala His Gln Gly Val Arg Pro Cys Asp Ile Ser
            35                  40                  45
Arg Gln Leu Arg Val Ser His Gly Cys Val Ser Lys Ile Leu Gly Arg
        50                  55                  60
Tyr Tyr Glu Thr Gly Ser Ile Arg Pro Gly Val Ile Gly Gly Ser Lys
65                  70                  75                  80
Pro Lys Val Ala Thr Pro Lys Val Val Glu Lys Ile Gly Asp Tyr Lys
                85                  90                  95
Arg Gln Asn Pro Thr Met Phe Ala Trp Glu Ile Arg Asp Arg Leu Leu
            100                 105                 110
Ala Glu Gly Val Cys Asp Asn Asp Thr Val Pro Ser Val Ser Ser Ile
        115                 120                 125
Asn Arg Ile Ile Arg Thr Lys Val Gln Gln Pro Phe Asn Leu Pro Met
    130                 135                 140
Asp Ser Cys Val Ala Thr Lys Ser Leu Ser Pro Gly His Thr Leu Ile
145                 150                 155                 160
Pro Ser Ser Ala Val Thr Pro Pro Glu Ser Pro Gln Ser Asp Ser Leu
                165                 170                 175
Gly Ser Thr Tyr Ser Ile Asn Gly Leu Leu Gly Ile Ala Gln Pro Gly
            180                 185                 190
Ser Asp Lys Arg Lys Met Asp Asp Ser Asp Gln Asp Ser Cys Arg Leu
        195                 200                 205
Ser Ile Asp Ser Gln Ser Ser Ser Ser Gly Pro Arg Lys His Leu Arg
    210                 215                 220
Thr Asp Ala Phe Ser Gln His His Leu Glu Pro Leu Glu Cys Pro Phe
225                 230                 235                 240
Glu Arg Gln His Tyr Pro Glu Ala Tyr Ala Ser Pro Ser His Thr Lys
                245                 250                 255
Gly Glu Gln Gly Leu Tyr Pro Leu Pro Leu Leu Asn Ser Thr Leu Asp
            260                 265                 270
Asp Gly Lys Ala Thr Leu Thr Pro Ser Asn Thr Pro Leu Gly Arg Asn
        275                 280                 285
Leu Ser Thr His Gln Thr Tyr Pro Val Val Ala Asp Pro His Ser Pro
    290                 295                 300
Leu Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser Thr
305                 310                 315                 320
Pro Cys Ser Leu Ser Ser Ser Ala Leu Leu Asp Leu Gln Gln Val Gly
                325                 330                 335
Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val Tyr
            340                 345                 350
Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Gly Arg Glu Met Val Gly
        355                 360                 365
Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln Gly
    370                 375                 380
Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Gly Ser Glu Tyr
385                 390                 395                 400
```

```
Ser Gly Asn Ala Tyr Gly His Thr Pro Tyr Ser Ser Tyr Ser Glu Ala
            405                     410                 415
Trp Gly Phe Pro Asn Ser Ser Leu Leu Ser Ser Pro Tyr Tyr Tyr Ser
            420                     425                 430
Ser Thr Ser Arg Pro Ser Ala Pro Pro Thr Thr Ala Thr Ala Phe Asp
        435                 440                 445
His Leu
    450


        <210> 26
        <211> 1811
        <212> DNA
        <213> Homo Sapiens


        <220>
        <221> CDS
        <222> (173)...(1609)


        <400> 26
ccgaccttac cccaggcggc cttgacgttg gtcttgtcgg caggagacag caccatggtg     60
ggttctctct gagtctggga attcccgagc ccgagccgca gccgccgcct ggggggcttg    120
ggtcggcctc gaggacaccg gagagggggcg ccacgccgcc gtggccgcag aa atg acc   178
                                                           Met Thr
                                                             1


atg gtt gac aca gag atc gca ttc tgg ccc acc aac ttt ggg atc agc     226
Met Val Asp Thr Glu Ile Ala Phe Trp Pro Thr Asn Phe Gly Ile Ser
            5                   10                  15


tcc gtg gat ctc tcc gta atg gaa gac cac tcc cac tcc ttt gat atc     274
Ser Val Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe Asp Ile
        20                  25                  30


aag ccc ttc act act gtt gac ttc tcc agc att tct act cca cat tac     322
Lys Pro Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro His Tyr
    35                  40                  45                  50


gaa gac att cca ttc aca aga aca gat cca gtg gtt gca gat tac aag     370
Glu Asp Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp Tyr Lys
                55                  60                  65


tat gac ctg aaa ctt caa gag tac caa agt gca atc aaa gtg gag cct     418
Tyr Asp Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val Glu Pro
            70                  75                  80


gca tct cca cct tat tat tct gag aag act cag ctc tac aat aag cct     466
Ala Ser Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn Lys Pro
            85                  90                  95


cat gaa gag cct tcc aac tcc ctc atg gca att gaa tgt cgt gtc tgt     514
His Glu Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg Val Cys
    100                 105                 110


gga gat aaa gct tct gga ttt cac tat gga gtt cat gct tgt gaa gga     562
Gly Asp Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys Glu Gly
115                 120                 125                 130
```

```
tgc aag ggt ttc ttc cgg aga aca atc aga ttg aag ctt atc tat gac     610
Cys Lys Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile Tyr Asp
            135             140             145

aga tgt gat ctt aac tgt cgg atc cac aaa aaa agt aga aat aaa tgt     658
Arg Cys Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn Lys Cys
            150             155             160

cag tac tgt cgg ttt cag aaa tgc ctt gca gtg ggg atg tct cat aat     706
Gln Tyr Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser His Asn
            165             170             175

gcc atc agg ttt ggg cgg atc gca cag gcc gag aag gag aag ctg ttg     754
Ala Ile Arg Phe Gly Arg Ile Ala Gln Ala Glu Lys Glu Lys Leu Leu
            180             185             190

gcg gag atc tcc agt gat atc gac cag ctg aat cca gag tcc gct gac     802
Ala Glu Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser Ala Asp
195             200             205             210

ctc cgt cag gcc ctg gca aaa cat ttg tat gac tca tac ata aag tcc     850
Leu Arg Gln Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile Lys Ser
            215             220             225

ttc ccg ctg acc aaa gca aag gcg agg gcg atc ttg aca gga aag aca     898
Phe Pro Leu Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly Lys Thr
            230             235             240

aca gac aaa tca cca ttc gtt atc tat gac atg aat tcc tta atg atg     946
Thr Asp Lys Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu Met Met
            245             250             255

gga gaa gat aaa atc aag ttc aaa cac atc acc ccc ctg cag gag cag     994
Gly Glu Asp Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln Glu Gln
            260             265             270

agc aaa gag gtg gcc atc cgc atc ttt cag ggc tgc cag ttt cgc tcc     1042
Ser Lys Glu Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe Arg Ser
275             280             285             290

gtg gag gct gtg cag gag atc aca gag tat gcc aaa agc att cct ggt     1090
Val Glu Ala Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile Pro Gly
            295             300             305

ttt gta aat ctt gac ttg aac gac caa gta act ctc ctc aaa tat gga     1138
Phe Val Asn Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys Tyr Gly
            310             315             320

gtc cac gag atc att tac aca atg ctg gcc tcc ttg atg aat aaa gat     1186
Val His Glu Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn Lys Asp
            325             330             335

ggg gtt ctc ata tcc gag ggc caa ggc ttc atg aca agg gag ttt cta     1234
Gly Val Leu Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu Phe Leu
            340             345             350
```

```
aag agc ctg cga aag cct ttt ggt gac ttt atg gag ccc aag ttt gag       1282
Lys Ser Leu Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys Phe Glu
355             360             365             370

ttt gct gtg aag ttc aat gca ctg gaa tta gat gac agc gac ttg gca       1330
Phe Ala Val Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp Leu Ala
                375             380             385

ata ttt att gct gtc att att ctc agt gga gac cgc cca ggt ttg ctg       1378
Ile Phe Ile Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly Leu Leu
            390             395             400

aat gtg aag ccc att gaa gac att caa gac aac ctg cta caa gcc ctg       1426
Asn Val Lys Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln Ala Leu
        405             410             415

gag ctc cag ctg aag ctg aac cac cct gag tcc tca cag ctg ttt gcc      1474
Glu Leu Gln Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu Phe Ala
        420             425             430

aag ctg ctc cag aaa atg aca gac ctc aga cag att gtc acg gaa cac       1522
Lys Leu Leu Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr Glu His
435             440             445             450

gtg cag cta ctg cag gtg atc aag aag acg gag aca gac atg agt ctt       1570
Val Gln Leu Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met Ser Leu
            455             460             465

cac ccg ctc ctg cag gag atc tac aag gac ttg tac tag cagagagtcc       1619
His Pro Leu Leu Gln Glu Ile Tyr Lys Asp Leu Tyr  *
            470             475

tgagccactg ccaacatttc ccttcttcca gttgcactat tctgagggaa aatctgacca   1679
taagaaattt actgtgaaaa agcgttttaa aaagaaaagg gtttagaata tgatctattt   1739
tatgcatatt gtttataaag acacatttac aatttacttt taatattaaa aattaccata   1799
ttatgaaatt gc                                                       1811
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        <210> 27
        <211> 478
        <212> PRT
        <213> Homo Sapiens

        <400> 27
Met Thr Met Val Asp Thr Glu Ile Ala Phe Trp Pro Thr Asn Phe Gly
1               5               10              15
Ile Ser Ser Val Asp Leu Ser Val Met Glu Asp His Ser His Ser Phe
            20              25              30
Asp Ile Lys Pro Phe Thr Thr Val Asp Phe Ser Ser Ile Ser Thr Pro
        35              40              45
His Tyr Glu Asp Ile Pro Phe Thr Arg Thr Asp Pro Val Val Ala Asp
    50              55              60
Tyr Lys Tyr Asp Leu Lys Leu Gln Glu Tyr Gln Ser Ala Ile Lys Val
65              70              75              80
Glu Pro Ala Ser Pro Pro Tyr Tyr Ser Glu Lys Thr Gln Leu Tyr Asn
                85              90              95
```

```
Lys Pro His Glu Glu Pro Ser Asn Ser Leu Met Ala Ile Glu Cys Arg
            100             105             110
Val Cys Gly Asp Lys Ala Ser Gly Phe His Tyr Gly Val His Ala Cys
        115             120             125
Glu Gly Cys Lys Gly Phe Phe Arg Arg Thr Ile Arg Leu Lys Leu Ile
    130             135             140
Tyr Asp Arg Cys Asp Leu Asn Cys Arg Ile His Lys Lys Ser Arg Asn
145             150             155             160
Lys Cys Gln Tyr Cys Arg Phe Gln Lys Cys Leu Ala Val Gly Met Ser
            165             170             175
His Asn Ala Ile Arg Phe Gly Arg Ile Ala Gln Ala Glu Lys Glu Lys
        180             185             190
Leu Leu Ala Glu Ile Ser Ser Asp Ile Asp Gln Leu Asn Pro Glu Ser
        195             200             205
Ala Asp Leu Arg Gln Ala Leu Ala Lys His Leu Tyr Asp Ser Tyr Ile
    210             215             220
Lys Ser Phe Pro Leu Thr Lys Ala Lys Ala Arg Ala Ile Leu Thr Gly
225             230             235             240
Lys Thr Thr Asp Lys Ser Pro Phe Val Ile Tyr Asp Met Asn Ser Leu
            245             250             255
Met Met Gly Glu Asp Lys Ile Lys Phe Lys His Ile Thr Pro Leu Gln
            260             265             270
Glu Gln Ser Lys Glu Val Ala Ile Arg Ile Phe Gln Gly Cys Gln Phe
        275             280             285
Arg Ser Val Glu Ala Val Gln Glu Ile Thr Glu Tyr Ala Lys Ser Ile
    290             295             300
Pro Gly Phe Val Asn Leu Asp Leu Asn Asp Gln Val Thr Leu Leu Lys
305             310             315             320
Tyr Gly Val His Glu Ile Ile Tyr Thr Met Leu Ala Ser Leu Met Asn
            325             330             335
Lys Asp Gly Val Leu Ile Ser Glu Gly Gln Gly Phe Met Thr Arg Glu
            340             345             350
Phe Leu Lys Ser Leu Arg Lys Pro Phe Gly Asp Phe Met Glu Pro Lys
        355             360             365
Phe Glu Phe Ala Val Lys Phe Asn Ala Leu Glu Leu Asp Asp Ser Asp
    370             375             380
Leu Ala Ile Phe Ile Ala Val Ile Ile Leu Ser Gly Asp Arg Pro Gly
385             390             395             400
Leu Leu Asn Val Lys Pro Ile Glu Asp Ile Gln Asp Asn Leu Leu Gln
            405             410             415
Ala Leu Glu Leu Gln Leu Lys Leu Asn His Pro Glu Ser Ser Gln Leu
            420             425             430
Phe Ala Lys Leu Leu Gln Lys Met Thr Asp Leu Arg Gln Ile Val Thr
        435             440             445
Glu His Val Gln Leu Leu Gln Val Ile Lys Lys Thr Glu Thr Asp Met
    450             455             460
Ser Leu His Pro Leu Leu Gln Glu Ile Tyr Lys Asp Leu Tyr
465             470             475
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<210> 28
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 28
gccaccaagt ccctgagtcc                                                    20
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<210> 29
<211> 19
<212> DNA
<213> Homo Sapiens

<400> 29
gacctacggg aggaagccc   19

<210> 30
<211> 18
<212> DNA
<213> Homo Sapiens

<400> 30
gcggacccaa gcagtgag   18

<210> 31
<211> 21
<212> DNA
<213> Homo Sapiens

<400> 31
tttcttatgg tcagattttc c   21

<210> 32
<211> 21
<212> DNA
<213> Homo Sapiens

<400> 32
acccagaaag cgattccttc a   21

<210> 33
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 33
atgggtgaaa ctctgggaga   20

<210> 34
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 34
ttgctgcaga tccaaaaagg   20

<210> 35
<211> 20
<212> DNA
<213> Homo Sapiens

<400> 35
gaggaagggg tggagctaga   20

<210> 36
<211> 537
<212> DNA
<213> Homo Saiens

<220>
<223> n = A or T or C or G or other

<400> 36
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atg ggt gaa act ctg gga gat tct cct att gac cca gaa agc gat tcc        48
ttc act gat aca ctg tct gca aac ata tca caa gaa nat cct cac tca        96
ccc ttc gcc ata aag cag gaa acc ccc gag gtg tcc agt tct agc tcc       144
acc cct tcc tct tta tct agc tcc gcc ttt ttg gat ctg cag caa gtc       192
ggc tcc ggg gtc ccg ccc ttc aat gcc ttt ccc cat gct gcc tcc gtg       240
tac ggg cag ttc acg ggc cag gcc ctc ctc tca ggg cga gag atg gtg       288
ggg ccc acg ctg ccc gga tac cca ccc cac atc ccc acc agc gga cag       336
ggc agc tat gcc tcc tct gcc atc gca ggc atg gtg gca gga agt gaa       384
tac tct ggc aat gcc tat ggc cac acc ccc tac tcc tcc tac agc gag       432
gcc tgg cgc ttc ccc aac tcc agc ttg ctg agt tcc cca tat tat tac       480
agt tcc aca tca agg ccg agt gca ccg ccc acc act gcc acg gcc ttt       528
gac cat ctg                                                           537
```

<210> 37
<211> 348
<212> DNA
<213> Homo Sapiens

<220>
<223> n = A or T or C or G or other

<400> 37
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atgggtgaaa ctctgggaga ttctcctatt gacccagaaa gcgattcctt cactgataca        60
ctgtctgcaa acatatcaca agaaggcga gagatggtgg ggcccacgct gcccggatac       120
ccaccccaca tccccaccag cggacagggc agctatgcct cctctgccat cgcaggcatg       180
gtggcaggaa gtgaatactc tggcaatgcc tatggccaca ccccctactc ctcctacagc       240
gaggcctggc gcttccccaa ctccagcttg ctgagttccc catattatta cagttccaca       300
tcaaggccga gtgcaccgcc caccactgcc acggcctttg accatctg                    348
```

<210> 38
<211> 246
<212> DNA
<213> Homo Sapiens

<220>
<223> n = A or T or C or G or other

<400> 38
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atgggtgaaa ctctgggaga ttctcctatt gacccagaaa gcgattcctt cactgataca        60
ctgtctgcaa acatatcaca agaangaagt gaatactctg caatgccta tggccacacc       120
ccctactcct cctacagcga ggcctggcgc ttccccaact ccagcttgct gagttccccg       180
tattattaca gttccacatc aaggccgagt gcaccgccca ccactgccac ggcctttgac       240
catctg                                                                 246
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<210> 39
<211> 178

<212> PRT
<213> Homo Sapiens

<220>
<223> Xaa = any amino acid

<400> 39
Met Gly Glu Thr Leu Gly Asp Ser Pro Ile Asp Pro Glu Ser Asp Ser
1   5   10   15
Phe Thr Asp Thr Leu Ser Ala Asn Ile Ser Gln Glu Xaa Pro His Ser
            20   25   30
Pro Phe Ala Ile Lys Gln Glu Thr Pro Glu Val Ser Ser Ser Ser Ser
        35   40   45
Thr Pro Ser Ser Leu Ser Ser Ser Ala Phe Leu Asp Leu Gln Gln Val
    50   55   60
Gly Ser Gly Val Pro Pro Phe Asn Ala Phe Pro His Ala Ala Ser Val
65   70   75   80
Tyr Gly Gln Phe Thr Gly Gln Ala Leu Leu Ser Gly Arg Glu Met Val
                85   90   95
Gly Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly Gln
            100   105   110
Gly Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Gly Ser Glu
        115   120   125
Tyr Ser Gly Asn Ala Tyr Gly His Thr Pro Tyr Ser Ser Tyr Ser Glu
    130   135   140
Ala Trp Arg Phe Pro Asn Ser Ser Leu Leu Ser Ser Pro Tyr Tyr Tyr
145   150   155   160
Ser Ser Thr Ser Arg Pro Ala Pro Pro Thr Thr Ala Thr Ala Phe Asp
                165   170   175
His Leu

<210> 40
<211> 116
<212> PRT
<213> Homo Sapiens

<220>
<223> Xaa = any amino acid

<400> 40
Met Gly Glu Thr Leu Gly Asp Ser Pro Ile Asp Pro Glu Ser Asp Ser
1   5   10   15
Phe Thr Asp Thr Leu Ser Ala Asn Ile Ser Gln Glu Xaa Arg Glu Met
            20   25   30
Val Gly Pro Thr Leu Pro Gly Tyr Pro Pro His Ile Pro Thr Ser Gly
        35   40   45
Gln Gly Ser Tyr Ala Ser Ser Ala Ile Ala Gly Met Val Ala Gly Ser
    50   55   60
Glu Tyr Ser Gly Asn Ala Tyr Gly His Thr Pro Tyr Ser Ser Tyr Ser
65   70   75   80
Glu Ala Trp Arg Phe Pro Asn Ser Ser Leu Leu Ser Ser Pro Tyr Tyr
                85   90   95
Tyr Ser Ser Thr Ser Arg Pro Ser Ala Pro Pro Thr Thr Ala Thr Ala
            100   105   110
Phe Asp His Leu

115

```
<210> 41
<211> 82
<212> PRT
<213> Homo Sapiens

<220>
<223> Xaa = any amino acid

<400> 41
Met Gly Glu Thr Leu Gly Asp Ser Pro Ile Asp Pro Glu Ser Asp Ser
1               5                   10                  15
Phe Thr Asp Thr Leu Ser Ala Asn Ile Ser Gln Glu Xaa Ser Glu Tyr
            20                  25                  30
Ser Gly Asn Ala Tyr Gly His Thr Pro Tyr Ser Ser Tyr Ser Glu Ala
        35                  40                  45
Trp Arg Phe Pro Asn Ser Ser Leu Leu Ser Ser Pro Tyr Tyr Tyr Ser
    50                  55                  60
Ser Thr Ser Arg Pro Ser Ala Pro Pro Thr Thr Ala Thr Ala Phe Asp
65                  70                  75                  80
His Leu


<210> 42
<211> 43
<212> DNA
<213> Homo Sapiens

<220>
<223> n = A or T or C or G or other

<221> CDS
<222> (1)...(43)

<400> 42
tct gca aac ata tca caa gaa nat cct cac tca ccc ttc gcc a        43
Ser Ala Asn Ile Ser Gln Glu Xaa Pro His Ser Pro Phe Ala
1               5                   10


<210> 43
<211> 14
<212> PRT
<213> Homo Sapiens

<220>
<223> Xaa = any amino acid

<400> 43
Ser Ala Asn Ile Ser Gln Glu Xaa Pro His Ser Pro Phe Ala
1               5                   10


<210> 44
<211> 43
<212> DNA
```

```
<213> Homo Sapiens


<220>
<223> n = A or T or C or G or other


<221> CDS
<222> (1)...(43)


<400> 44
tct gca aac ata tca caa gaa ngg cga gag atg gtg ggg ccc a        43
Ser Ala Asn Ile Ser Gln Glu Xaa Arg Glu Met Val Gly Pro
1               5                   10



<210> 45
<211> 14
<212> PRT
<213> Homo Sapiens


<220>
<223> Xaa = any amino acid


<400> 45
Ser Ala Asn Ile Ser Gln Glu Xaa Arg Glu Met Val Gly Pro
1               5                   10


<210> 46
<211> 43
<212> DNA
<213> Homo Sapiens


<220>
<223> n = a or T or C or G or other


<221> CDS
<222> (1)...(43)


<400> 46
tct gca aac ata tca caa gaa nga agt gaa tac tct ggc aat g        43
Ser Ala Asn Ile Ser Gln Glu Xaa Ser Glu Tyr Ser Gly Asn
1               5                   10



<210> 47
<211> 14
<212> PRT
<213> Homo Sapiens


<220>
<223> Xaa = any amino acid


<400> 47
Ser Ala Asn Ile Ser Gln Glu Xaa Ser Glu Tyr Ser Gly Asn
1               5                   10
```